

## COMPUTING A DIVERSE PATH WHILE PROVIDING OPTIMAL USAGE OF LINE PROTECTED LINKS

### ABSTRACT

Methods and apparatus for enabling line-protected links to be included in path-protected segments of a unidirectional path-switched ring are disclosed. According to one aspect of the present invention, a method for computing a circuit path that includes a primary path between a start node and a destination node as well as an alternate path includes determining the primary path using a routing algorithm. The primary path includes a protectable segment which has a first line-protected link. The method also includes creating the alternate path using the routing algorithm. Creating the alternate path includes creating the alternate path between the start node and the end node such that the alternate path is arranged to protect at least the protectable segment which includes the first line-protected link. In one embodiment, the alternate path is created such that the alternate path includes the first line-protected link.